Technical sheet Heavy load pallet conveyor TRM





/TRM TRANSFER SYSTEM

Transfert TRM

The solution for your heavy loads.



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TRM assembly line

The TRM transfer is a conveyor solution for transporting heavy loads up to 100 kg on WPC from 436x436 to 836x836 mm.

The design is fully modular and can be configured according to the dimensions of your transported products.

The sections are made from 90x45 aluminium profile fitted with 12.7mm pitch accumulation chain with plastic or steel rollers (on request). The length of asection is configurable from 550 to 6250 mm, with the possibility of making longer lengths with section assembly kits.

The configurations are: racetrack or rectangular, with optional entry/exit (more configurations are available on request).

The compact lift & transfer type direction change system has a 24V motorised roller drive.

This leaflet presents the TRM accessories: stop units, stop pads, sensor brackets, single legs and positioning units (repeatability of 0.1 mm).





The transfer function requires several traffic levels:



Level - 10mm

Level 0



/ Description

WPC frames support and carry the components to be assembled. The WPC frames are fitted with plastic pads to reduce wear when accumulating. Their dimensioning allows for breaks in flow. Each WPC frame is fitted with 4 lateral sensors and 4 sensors underneath.

It should be noted that the total weight, WT, allowed for longitudinal transport is different for longitudinal and transverse transport. In transverse transport, the sideto be taken into account in the calculation is always theshorter side. The total permissible loads are shown in the table opposite.

Minimum dimensions: 436x436 mm

/ Options

3 sets of positioning sleeves available. These sleeves increase the empty weight of the workpiece carrier by 1.3 kg. In combination with the positioning unit, the bushes enable the exact positioning of the workpiece carrier in a processing station.







Dimension of WPC frame in mm (L1xL2)	Weight of WPC frame (kg)	Load capacity, plastic transverse chain (F) / Load capacity cross steel chain (F) - permissible loads, including WPC (kg)	Load capacity, longitudinal plastic chain (F) / Load capacity, longitudinal steel chain (F) - permissible loads, including WPC (kg)
436x436	4	40 / 100	40 / 100
436x536	4,5	40 / 100	55 / 143
436x636	5	40 / 100	70 / 182
436x736	5,5	40 / 100	80 / 208
436x836	6	40 / 100	100 / 260
536x536	5	55 / 143	55 / 143
536x636	5,5	55 / 143	70 / 182
536x736	6	55 / 143	80 / 208
536x836	6,5	55 / 143	100 / 260
636x636	6	70 / 182	70 / 182
636x736	6,5	70 / 182	80 / 208
636x836	7	70 / 182	100 / 260
736x736	7	80 / 208	80 / 208
736x836	7,5	80 / 208	100 / 260
836x836	8	100 / 260	100 / 260





WPC FRAMES REFERENCING

WPC frame dimensions in mm (L1xL2) / (L3xL4)	L1	L2	L3	L4	Article number
436x436		436		391	TRM-WPC1-0436-0436
436x536		536		491	TRM-WPC1-0436-0536
436x636	436	636	391	591	TRM-WPC1-0436-0636
436x736		736		691	TRM-WPC1-0436-0736
436x836		836		791	TRM-WPC1-0436-0836
536x536		536		491	TRM-WPC1-0536-0536
536x636		636		591	TRM-WPC1-0536-0636
536x736	536	736	491	691	TRM-WPC1-0536-0736
536x836		836	6	791	TRM-WPC1-0536-0836
636x636		636		591	TRM-WPC1-0636-0636
636x736	636	736	591	691	TRM-WPC1-0636-0736
636x836		836		791	TRM-WPC1-0636-0836
736x736		736		691	TRM-WPC1-0736-0736
736x836	736	836	691	791	TRM-WPC1-0736-0836
836x836	836	836	791	791	TRM-WPC1-0836-0836

Data table provides by ELCOM Challans - Juin 2020

Direct drive section

/ Each section is composed of 2 lanes made of anodised aluminium fitted with side guiding profiles for the guiding of WPC.

The loading capacity of each section varies according to the speed and power of the drive.

The length of each section varies according to the transported linear load and type of chain.

Mininum length: 750 mm

Maximum length without extension: 6250 mm (for bigger sizes, please contact us).

Possible forward/ reverse operation







Direct drive section

/ Load capacity per section Motor reducer 250w

/ Load capacity per section Motor reducer 370w





/ Load capacity per section Motor reducer 550w



Description	Unit	Reference
Direct drive - right side	piece	4540
Direct drive - left side	piece	4541
Linear section - plastic	meter	TRM-4504
Linear section - steel	meter	TRM-4532

Intermediate drive section

/ Each section is composed of 2 lanes made of anodised aluminium fitted with side guiding profiles for the guiding of WPC.

The loading capacity of each section varies according to the speed and power of the drive.

The length of each section varies according to the transported linear load and type of chain.

Mininum length: 550 mm

Maximum lenght without lengthening: 12 000 mm (for bigger sizes, please contact us)

Possible forward/ reverse operation







Intermediate drive section

/ Load capacity per section Motor reducer 250w

/ Load capacity per section Motor reducer 370w





/ Load capacity per section Motor reducer 550w





Description	Unit	Reference
Intermediate drive - right or left side	piece	4700
Linear section - plastic chain	meter	TRM-4504
Linear section - steel chain	meter	TRM-4532

Chains

/ Linear load for accumulation chain 150daN/m of section (including WPC)

/ Linear load for steel chain 390daN/m of section (including WPC)



TRM

/ Split link for TRM chain

Description	Unit	Reference
Accumulation plastic chain PA	meter	1827-ML
Accumulation steel chain	meter	1827-A-ML
Split link for TRM chain	piece	1854

Section lengthening

/ Section lengthening allows:

- for the extension of the section length (longer than 6250 mm)

- for ease of dismantling of the section from both ends of a working place (for transportation purposes for instance).







Description	Unit	Reference
Section lengthening TRM	piece	7180-TRM

/ The transfer device raises the WPC and brings it perpendicular to another drive section. A compact double-acting pneumatic cylinder provides the vertical movement.

24v driven rollers provide the WPC transferring movement thanks to an electronic circuit board. Several speeds are available with this board. Each WPC is moved separately. The installation of a stop to break the flow just before the transfer device is advised.

The WPC can be stopped laterally with part no. TRM4523. (To be ordered separately).

The longitudinal stopping of the WPC is done with part numbers 4516 and 4537.

(To be ordered separately).

A M12 inductive sensor (not supplied) with a 4mm sweep area allows for detection of the WPC when located on the transfer device (in contact with the rollers).

It can be mounted on the TRM-4523 part. A M12 inductive sensor (not supplied) with a 4mm sweep area and mounted on side sensor bracket ref.8097 (quoted separately) provides for detection of the WPC when located above the transfer device (without being in contact with the rollers).

Detection of the upper and lower position of the transfer device is done with the sensors of the pneumatic cylinder. Sensors are supplied with an M8 connector.

The support base of the transfer device is provided by its own structure.

Load capacity of the lift (included WPC): 200 daN.

Double-acting pneumatic cylinder Ø 80. Lubricated or dry, cleaned air, 5 to 6 bars. Flow limiter, Ø 4mm connector pipe (supplied).

High and low position sensors supplied.







Transfer device

Α	В	Reference
436	436	TRM-ST-0436-0436
436	536	TRM-ST-0436-0536
436	636	TRM-ST-0436-0636
436	736	TRM-ST-0436-0736
436	836	TRM-ST-0436-0836
536	436	TRM-ST-0536-0436
536	536	TRM-ST-0536-0536
536	636	TRM-ST-0536-0636
536	736	TRM-ST-0536-0736
536	836	TRM-ST-0536-0836
636	436	TRM-ST-0636-0436
636	536	TRM-ST-0636-0536
636	636	TRM-ST-0636-0636
636	736	TRM-ST-0636-0736
636	836	TRM-ST-0636-0836
736	436	TRM-ST-0736-0436
736	536	TRM-ST-0736-0536
736	636	TRM-ST-0736-0636
736	736	TRM-ST-0736-0736
736	836	TRM-ST-0736-0836
836	436	TRM-ST-0836-0436
836	536	TRM-ST-0836-0536
836	636	TRM-ST-0836-0636
836	736	TRM-ST-0836-0736
836	836	TRM-ST-0836-0836

Single leg sets

/ Leg sets are supplied at the required working height and provide rigidity and stability to the system.

The maximum distance between 2 leg sets is 2 meters.

Anchoring links and sections fixing parts are supplied.

Leg set height adjustment is +/- 40 mm





Available

H = height working (from the floor to the top of WPC)

Description	Unit	Reference
Single leg 436mm	piece	TRM-LG-0436 (indicate height H)
Single leg 536mm	piece	TRM-LG-0536 (indicate height H)
Single leg 636mm	piece	TRM-LG-0636 (indicate height H)
Single leg 736mm	piece	TRM-LG-0736 (indicate height H)
Single leg 836mm	piece	TRM-LG-0836 (indicate height H)

TRM

Connection between perpendicular sections

/ The installation of connectors is necessary when erecting the line to get a proper configuration.







Description	Unit	Reference
Side stop	piece	TRM-4520

Connection between parallel sections

/ This connection ensures correct transfer of the WPC between 2 parallel sections.

It is composed of free running rollers and it guides the WPC during transfer.

This connection is the same whatever the WPC dimensions are.









Description	Unit	Reference
Connection between parallel sections	piece	TRM-4522

Locking nuts for the t-slots

/ Nuts enable the mounting of accessories on all the slots available on the TRM.



Square nuts





Spring loaded square nuts

Description	Unit	Reference
Square nut M4	piece	NSCAR8M4
Square nut M5	piece	NSCAR8M5
Square nut M6	piece	NSCAR8M6
Square nut M8	piece	NSCAR8M8
Spring loaded square nut M4	piece	NSCL8M4
Spring loaded square nut M5	piece	NSCL8M5
Spring loaded square nut M6	piece	NSCL8M6
Spring loaded square nut M7	piece	NSCL8M8

Dampened pneumatic stop unit

/ Stop unit allows for the stopping of WPC at the work stations and before entering transfer devices.

A sliding mechanism dampens the WPC stop by actuating a hydraulic shock absorber. This mechanism resets again once the WPC has been released.

Single effect pneumatic stop unit. Lubricated or dry, cleaned air, 5 to 6 bars. Ø 4 mm connector pipe (supplied).







Description	Unit	Reference
Dampened pneumatic stop unit	piece	4516

Dampened stop unit at section end

/ Stop unit allows for the stopping of WPC at the end of a section when it is on a transfer device.

A sliding mechanism dampens the WPC stop by actuating a hydraulic shock absorder.

This mechanism resets again after the WPC has been raised by the transfer device.







Description	Unit	Reference
Dampened stop unit at section end	piece	4537

Sensor bracket and WPC stop pad

/ Detection of the WPC at the work stations can be provided by M12 inductive sensors (not supplied), with or without connector, with a 4 mm sweep area, mounted on a bracket combined with a stop pad.

The WPC stop pad improves the stopping accuracy reducing the movement of the WPC and wear on the side guiding profile.

Its setting is advisable but becomes necessary when load is above 30 daN







Description	Unit	Reference
Sensor bracket and WPC stop pard	piece	4527

WPC stop pad

/ The WPC stop pad improves the stopping accuracy reducing WPC movement and wear on the side guiding profile.

Its setting is advisable but becomes necessary when load is above 30 daN.

4529



Description	Unit	Reference
WPC stop pad	piece	4529

Available

Side sensor bracket

/ Detection of the WPC when stopped at the work station and the control of flow and priorities are provided by M12 inductive sensors (not supplied), with a 4mm sweep area (fitted with or without connector), fixed on the frame.





Description	Unit	Reference
Side sensor bracket	piece	4515

Mechanical anti-return device

/ The anti-return device is located under the WPC and prevents the return of the WPC during the assembly process at the work station or when stopped along the line.





Description	Unit	Reference
Mechanical anti-return device	piece	8097

Undampened side stop

/ The side stop is located at the end of the transfer device (outside the section) and allows for the WPC to stop on that same device.

M12 screws allow inductive sensors to be mounted (recommended range of 4mm) for the detection of the WPC in the upper and lower position (sensors not supplied).





Description	Unit	Reference
Side stop	piece	TRM-4523

WPC positioning blocks

/ The optionally available positioning blocks, in combination with the TRM-PT and 4401 positioning units, enable exact positioning of the workpiece carrier pallet.

The blocks are fixed directly to the workpiece carrier WPC (optional).

The number of blocks used depends on the path of the workpiece carrier WPC and the configuration of the assembly line







2 blocks



Description	Unit	Reference
WPC kit (2 blocks)	piece	TRM-WPC1-4400-2
WPC kit (3 blocks)	piece	TRM-WPC1-4400-3
WPC kit (4 blocks)	piece	TRM-WPC1-4400-4

XY positioning unit

/ The positioning of the workpiece carrier pallet is done by means of the positioning rods and positioning blocks of the workpiece carrier pallet (sold separately).

The spacing of the XY positioning blocks is adjustable along the drive section according to the length of the tray.

The positioned WPC remains in contact with the chains.

Never exceed the load allowed by the chains (WPC + workpiece carrier + pieces + additional force).

The positioning repeatability on the X and Y axis is +/- 0.1 mm.

Double acting Ø 32mm pneumatic cylinder.

Lubricated or dry, cleaned air, 5 to 6 bars. Ø 6 mm connector pipe (supplied). High and low position sensors supplied. Connectors M8







Description	Unit	Reference
Positioning tool XY	piece	4401

XYZ positioning unit

/ The positioning of the workpiece carrier pallet is done by means of the positioning rods and positioning blocks of the workpiece carrier pallet (sold separately) and by lifting the pallet.

The support plate of the positioner is adapted to the size of the pallet and supports the positioning plate.

It also absorbs vertical processing forces.

The positioner can accommodate 250 daN under 5 bars.

The positioned plate is no longer in contact with the chains.

The positioning repeatability on 3 axes is 0.1 mm.

The absorption of the forces must be borne by a machine frame or by the structure proposed as an option. Under no circumstances should the drive section take up the forces. Operator protection must be provided.

Double acting pneumatic cylinder Ø 80 mm. Lubricated or dry, cleaned air, 5 to 6 bars. Ø 6 mm connector pipe (supplied). Flow limiter supplied High and low position sensors supplied. Connectors M8.





XYZ positioning tool

A Width WPC / section	B Length WPC	Reference
436	436	TRM-PT-0436-0436
436	536	TRM-PT-0436-0536
436	636	TRM-PT-0436-0636
436	736	TRM-PT-0436-0736
436	836	TRM-PT-0436-0836
536	436	TRM-PT-0536-0436
536	536	TRM-PT-0536-0536
536	636	TRM-PT-0536-0636
536	736	TRM-PT-0536-0736
536	836	TRM-PT-0536-0836
636	436	TRM-PT-0636-0436
636	536	TRM-PT-0636-0536
636	636	TRM-PT-0636-0636
636	736	TRM-PT-0636-0736
636	836	TRM-PT-0636-0836
736	436	TRM-PT-0736-0436
736	536	TRM-PT-0736-0536
736	636	TRM-PT-0736-0636
736	736	TRM-PT-0736-0736
736	836	TRM-PT-0736-0836
836	436	TRM-PT-0836-0436
836	536	TRM-PT-0836-0536
836	636	TRM-PT-0836-0636
836	736	TRM-PT-0836-0736
836	836	TRM-PT-0836-0836

XYZ positioning unit

/ The positioner support frame is neces sary to absorb the vertical processing forces.

It is made of large-section aluminum profileand also serves as a leg stand.

Height adjustment +/- 50 mm is possible.

Operator protection in the lower part of the frame is included.

Sealing brackets supplied.





Description	Unit	Reference
Positioning unit width 436	piece	TRM-PT-0436-CHASSIS
Positioning unit width 536	piece	TRM-PT-0536-CHASSIS
Positioning unit width 636	piece	TRM-PT-0636-CHASSIS
Positioning unit width 736	piece	TRM-PT-0736-CHASSIS
Positioning unit width 836	piece	TRM-PT-0836-CHASSIS



Lift solutions

/ Various lift solutions for the transport of goods at different levels are possible.

Thus, it is possible to install floor systems as in the pictures below.

Obtain your solution proposal on request.



